



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/508,847 | 06/19/2000 | MARKUS R MULLER | C-36404 | 5211 |

7590

04/09/2003

DVORAK & ORUM
53 WEST JACKSON BOULEVARD
CHICAGO, IL 60604

EXAMINER

AKHAVANNIK, HUSSEIN

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2621

DATE MAILED: 04/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/508,847

Applicant(s)

MULLER, MARKUS R

Examiner

Hussein Akhavannik

Art Unit

2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☒ Claim(s) 1 and 4 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 June 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Specification

1. Claims 1 and 4 are objected to because of the following informalities:

Referring to claim 1, “optically detectable data of object” should be replaced with “optically detectable data of an object” so that the claim is grammatically correct.

Referring to claim 4, “, Claim Claim” should be deleted as the claims numbers were deleted in the second preliminary amendment of this application.

Appropriate correction is required.

2. The disclosure is objected to because of the following informalities:

- a. On page 1, line 6, “, as defined generically in Patent Claim 1” should be deleted because the claims numbers in the application may change during prosecution.

- b. On page 14, line 7, “it” should be removed from “data, the finger it is brought” so that the sentence is grammatically correct.

- c. The numbering of the pages of the specification should be corrected. For example, pages 1 and 2 are missing page numbers.

- d. The specification is not labeled properly. Please note the required content of the specification below:

Content of Specification

- (a) Title of the Invention: See 37 CFR 1.72(a) and MPEP § 606. The title of the invention should be placed at the top of the first page of the specification unless the title is provided in an application data sheet. The title of the invention should be brief but technically accurate and descriptive, preferably from two to seven words may not contain more than 500 characters.
- (b) Cross-References to Related Applications: See 37 CFR 1.78 and MPEP § 201.11.

Art Unit: 2621

- (c) Statement Regarding Federally Sponsored Research and Development: See MPEP § 310.
- (d) Incorporation-By-Reference Of Material Submitted On a Compact Disc: The specification is required to include an incorporation-by-reference of electronic documents that are to become part of the permanent United States Patent and Trademark Office records in the file of a patent application. See 37 CFR 1.52(e) and MPEP § 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text were permitted as electronic documents on compact discs beginning on September 8, 2000.

Or alternatively, Reference to a "Microfiche Appendix": See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.

- (e) Background of the Invention: See MPEP § 608.01(c). The specification should set forth the Background of the Invention in two parts:
 - (1) Field of the Invention: A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the applicable U.S. patent classification definitions of the subject matter of the claimed invention. This item may also be titled "Technical Field."
 - (2) Description of the Related Art including information disclosed under 37 CFR 1.97 and 37 CFR 1.98: A description of the related art known to the applicant and including, if applicable, references to specific related art and problems involved in the prior art which are solved by the applicant's invention. This item may also be titled "Background Art."
- (f) Brief Summary of the Invention: See MPEP § 608.01(d). A brief summary or general statement of the invention as set forth in 37 CFR 1.73. The summary is separate and distinct from the abstract and is directed toward the invention rather than the disclosure as a whole. The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and preferably indicated in the Background of the Invention). In chemical cases it should point out in general terms the utility of the invention. If possible, the nature and gist of the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention.
- (g) Brief Description of the Several Views of the Drawing(s): See MPEP § 608.01(f). A reference to and brief description of the drawing(s) as set forth in 37 CFR 1.74.
- (h) Detailed Description of the Invention: See MPEP § 608.01(g). A description of the preferred embodiment(s) of the invention as required in 37 CFR 1.71. The

Art Unit: 2621

description should be as short and specific as is necessary to describe the invention adequately and accurately. Where elements or groups of elements, compounds, and processes, which are conventional and generally widely known in the field of the invention described and their exact nature or type is not necessary for an understanding and use of the invention by a person skilled in the art, they should not be described in detail. However, where particularly complicated subject matter is involved or where the elements, compounds, or processes may not be commonly or widely known in the field, the specification should refer to another patent or readily available publication which adequately describes the subject matter.

- (i) Claim or Claims: See 37 CFR 1.75 and MPEP § 608.01(m). The claim or claims must commence on separate sheet (37 CFR 1.52(b)). Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation. There may be plural indentations to further segregate subcombinations or related steps. See 37 CFR 1.75 and MPEP § 608.01(i)-(p).
- (j) Abstract of the Disclosure: See MPEP § 608.01(f). A brief narrative of the disclosure as a whole in a single paragraph of 150 words or less commencing on a separate sheet following the claims. In an international application which has entered the national stage (37 CFR 1.491(b)), the applicant need not submit an abstract commencing on a separate sheet if an abstract was published with the international application under PCT Article 21. The abstract that appears on the cover page of the pamphlet published by the International Bureau (IB) of the World Intellectual Property Organization (WIPO) is the abstract that will be used by the USPTO. See MPEP § 1893.03(e).
- (k) Sequence Listing, See 37 CFR 1.821-1.825 and MPEP §§ 2421-2431. The requirement for a sequence listing applies to all sequences disclosed in a given application, whether the sequences are claimed or not. See MPEP § 2421.02.

Appropriate correction is required.

Drawings

3. The subject matter of this application admits of illustration by a drawing to facilitate understanding of the invention. Applicant is required to furnish a drawing under 37 CFR 1.81. No new matter may be introduced in the required drawing.

4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. For example, the process of creating a resulting image in claim 1 should be illustrated by a flow chart.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1-20 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention..

Referring to claim 1, it is not understood how a series of recordings can be assembled to form a plurality of resulting images. The specification explains how a plurality of recordings can be assembled to form one resulting image. However, it does not explain plural resulting images.

Referring to claim 8, it is not understood what is meant by “relative distances” between the camera and the object.

Claims 2-20 are rejected for depending on an indefinite base claim.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 2621

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-2, 10-12, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Olsson (WO 97/25690).

Referring to claim 1,

- i. A method for recording and storing the optically detectable data of an object on a storage medium, characterized in that a sequence of a plurality of individual recordings of the object are made with a camera at various spatial settings with respect to the relative position between the object and the camera is explained by Olsson on page 2, paragraphs 3-4. Olsson explains shooting images in different spatial settings by moving the camera closer to or farther from the object, which corresponds to the object moving in relation to the position of the camera.
- ii. The sharply imaged areas of the individuals being determined is explained by Olsson on page 3, paragraphs 4-6. Olsson explains that the focused image element is selected from the captured images.
- iii. The sharply image areas of all the individual recordings are assembled to form one or a plurality of resulting images is explained by Olsson on page 3, paragraph 3. Olsson explains that a sharp image is created by adding together focused different image elements.

Referring to claim 2,

Art Unit: 2621

- i. The individual recordings being stored in a computer is explained by Olsson on page 9, paragraph 3.
- ii. The sharply imaged areas of the individual recording being determined by the computer with the aid of digital methods is explained by Olsson on page 9, paragraph 5. Olsson explains that programs can be added to the computer to select elements from different images, which are the basis of subsequent corrections.
- iii. The resulting images being assembled with the aid of a computer is explained by Olsson on page 9, paragraph 5. Olsen explains that programs can be added to the computer for matching the basic image format for integration of focused image elements.

Referring to claim 10,

- i. Initially all the individual recordings of the sequence being stored in a computer is explained by Olsson on page 9, paragraph 3. Olsson explains that the software on the computer can store several images, which together would constitute a sequence.
- ii. The sharply imaged areas being identified after recording of the sequence of individual recordings has been concluded is explained by Olsson on page 9, paragraph 5. The computer programs can process the images to be able to select elements after the images have been stored on the computer.

Referring to claim 11, the sharply imaged areas of each individual recording of the sequence being identified and incorporated into the resulting image immediately after they have

Art Unit: 2621

been recorded is explained by Olsson on page 9, paragraph 5. The computer programs processes each image stored on the computer individually, either after all the images are stored or after the sequence of images is collected. Such processing is available because Olsson does not require information from an entire sequence of images to determine the in-focus region of a single image.

Referring to claim 12, a plurality of resulting images being assembled from the sequence of individual recordings, different areas of the object or different features of the object being shown in the resulting images in each instance would be inherent in the system of Olsson. The system of Olsson is capable of assembling a plurality of images to produce a resulting image. Using different portions from the sequence of images, multiple resulting images can be produced that would each include different features of the object being imaged.

Referring to claim 20, a computer, a camera, and a control device being provided is explained by Olsson on page 9, paragraph 2. Olsson explains that a camera is connected to a computer for obtaining images of an object. Olsson further explains that the camera consists of controls, whose settings can be registered.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Olsson in view of Duvent (U.S. Patent No. 4,701,782).

Referring to claim 3, the sharply images areas being determined by digital formation of the derivative is not explicitly explained by Olsson. However, Duvent does explain determining the focus of a camera by taking the derivative of the input image in the abstract and in column 3, line 30 to column 4, line 5. Duvent explains that the quality parameter determines whether the image is appropriately in focus. When an image is in focus, the contours of the image are very sharp and therefore, the contours would have high derivative values. It would be obvious to insert the digital derivative computing method of Duvent into the sharp image determining section of Olsson, as Olsson's images are also stored digitally. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use derivative to determine the sharply imaged areas of an image.

11. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olsson in view of Hart (U.S. Patent No. 5,473,368).

Referring to claim 4, the parameters for recording the sequence of individual recordings being predetermined by a computer and the computer controlling the sequence of the recording is not explicitly explained by Olsson. However, Hart explains a microprocessor controlling the parameters of recording in the abstract and in column 9, line 48 to column 10, line 9. The parameter of recording is the output of the ultrasonic rangefinder, which detects if an intruder as entered an area. The microprocessor then controls the camera to record a scene if an intruder is detected to be in an area and the microprocessor then shuts down the surveillance device if the intruder leaves an area. By controlling the camera automatically using the range as a parameter, film or storage space and energy will be conserved, which is very important in portable or remote cameras. Therefore, it would have been obvious to one of ordinary skill in the art at the

Art Unit: 2621

time the invention was made to have a computer control the recording of a camera depending of parameters of recording.

Referring to claim 5, the recording of the sequence of individual recordings being started automatically corresponds to claim 4. The camera starts recording automatically when an object is detected in the rangefinder area.

Referring to claim 6, the recording of the sequence of individual recordings being started by means of a photoelectric barrier corresponds to claim 4. The applicant explains the photoelectric barrier as detecting whether an object is moving towards or away from the camera. Therefore, the photoelectric barrier corresponds to the rangefinder of Hart.

12. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Olsson in view of Mimura et al (U.S. Patent No. 5,282,045), and further in view of Dani et al (Pankaj Dani et al: "Automated Assembling f Images: Image Montage Preparation" Pattern Recognition, Vol. 28, No. 3, March 1995, Pages 431-445).

Referring to claim 8, the individual recordings being made at fixed, predetermined relative distances between the camera and the object is not explicitly explained by Olsson. However, Mimura et al explain that the image pickup device may be moved within a movable range in order to change the best focal length position of the camera in column 7, line 58 to column 8, line 4 and illustrated in figure 12. It would be advantageous to maintain the same focus between images being combined, such as in the image assembly systems of Olsson and Mimura et al, so that the images in a sequence have the same properties. However, when an object moves, the object may go out of focus. Thus, it would be necessary to move the camera so that the distance between the camera and object is fixed and the object remains on focus.

Art Unit: 2621

Furthermore, Dani et al explain that if the images of a sequence to be assembled taken at different relative distances, then the magnification factors and the warping factors would have to be corrected before assembling on page 432, first column. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to maintain a fixed relative distance between the camera and the object so that the processing done to assemble the images is reduced.

13. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Olsson in view of Sieben (U.S. Patent No. 5,445,155).

Referring to claim 13, the image plane being divided into a plurality of areas and processing the image areas in parallel are not explicitly explained by Olsson. However, Sieben explains dividing an image into plurality of areas to process the areas in parallel in column 45, lines 45-58. In order to increase the speed of the processing of images to display the images real-time, it is necessary to process the images with a powerful microprocessor or in parallel. Because the each section of the images of Olsson are being determined to be sharp or not sharp, it would be obvious to send each section to an individual processor as explained by Sieben to increase processing speed at a low economical cost. Thus, multiple images, in 2D or 3D, can be computed very quickly. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to divide the image plane into a plurality of areas and process the images in parallel.

14. Claims 7, 9, 14-15, 17, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olsson in view of well known prior art.

Referring to claim 7, the individual recordings being made at fixed, predetermined time intervals is not explicitly explained by Olsson. However, a camera recording frames at fixed, predetermined time intervals is well known in the art (official notice). Every camera is capable of taking a predetermined number of images per second in order to capture a seemingly continuous event. In order to reduce the memory required to record an event, surveillance cameras typically use a lower frame rate, which resulting in poor film quality and discontinuity. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to recording images at a fixed, predetermined time interval.

Referring to claim 9, a CCD camera being used as the camera for recording the sequence of individual recordings is not explicitly explained by Olsson. However, the images of Olsson are processed digitally, so the images must also be in digital form. Using a CCD camera to capture images in digital form is very well known in the art (official notice). Using a CCD camera would improve the system of Olsson by saving the time and computation required to convert analog images to digital images. It would also allow the system of Olsson to work in real time. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a CCD camera for recording a sequence of images.

Referring to claim 14, identifying a feature of the finger is not explicitly explained by Olsson. However, imaging a finger to identify features of a finger is well known in the art (official notice). Features of a finger serve to identify the person whose finger has been imaged. The system of Olsson would be capable of imaging a finger to obtain a completely in-focus image of the finger. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to image a finger to identify features of the finger.

Referring to claim 15, the object being illuminated by a light source is not explicitly explained by Olsson. However, using a light to illuminate an object being imaged in order to capture an image in the dark or obtain a higher quality image is well known in the art (official notice). Such an illumination source would allow the camera of Olsson to be effective in the dark. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to illuminate an object with an illumination source.

Referring to claim 17, the object being illuminated by a plurality of light sources of different wavelength ranges and in different arrangements is not explicitly explained by Olsson. However, using a plurality of different light sources at different wavelengths is well known in the art (official notice). Using different wavelengths of light allows for increased contrast in an image, which would improve object identification. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to illuminate an object with multiple light sources of different wavelengths.

Referring to claim 19, only areas of the object that are within the focus of the camera being illuminated is not explicitly explained by Olsson. However, illuminating an object that is within the focus of the camera is well known in the art (official notice). Illuminating an area of an object increases the quality of that portion of the image and allows for capturing an image in the dark. Emphasizing different portions of an object would be beneficial in the imaging system of Olsson as the in focus areas can be imaged in higher quality, so that the resulting composite image would be of higher quality. Furthermore, the imaging system of Olsson discards the out of focus areas of the image, so illuminating the entire scene would not improve the resulting composite image. Therefore, it would have been obvious to one of ordinary skill in the art at the

Art Unit: 2621

time the invention was made to illuminate only areas of an object that are within the focus of the camera.

15. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Olsson in view of Hart, and further in view of well known prior art.

Referring to claim 16, a pulsed light source that is synchronized with the camera being used is not explicitly explained by Olsson or Hart. However, a pulsed light source being synchronized with the camera is well known in the art (official notice). The object of an illumination source is to illuminate an object for imaging in low light conditions. If a pulsed light source were not synchronized with the camera, then the object to be imaged would not be illuminated as it is being imaged, thereby defeating the benefit of the illumination source. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to synchronize a pulsed light source with the camera being used.

16. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Olsson in view of well known prior art, and further in view of Hart.

Referring to claim 18, the object being illuminated as long as it is moving towards the camera and away from the camera corresponds to claim 4. The microprocessor will operate the surveillance device as long as the output of the rangefinder detects an object is moving in an area. Hart explains in column 9, lines 54-62 that the surveillance device includes a light. Therefore, when the surveillance device is on, the light will illuminate the object being imaged. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to illuminate an object as long as it moves toward and away from the camera, so that the object can be imaged accurately in low light conditions.

Art Unit: 2621

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hussein Akhavannik whose telephone number is (703)306-4049.

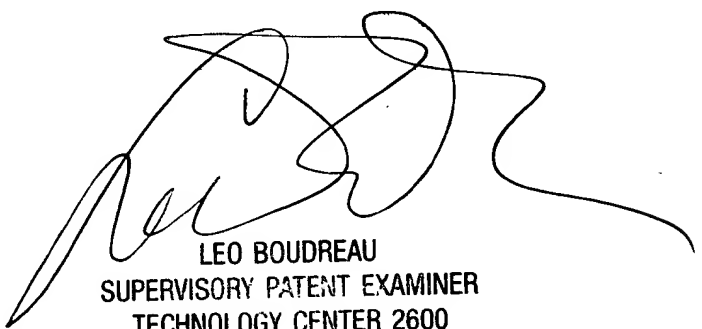
The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo H. Boudreau can be reached on (703)305-4706. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9314 for regular communications and (703)872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-3900.

Hussein Akhavannik
April 6, 2003

H.A.



LEO BOUDREAU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600